

REMARKS

Applicants thank the Examiner for withdrawing the rejection of claims 7 and 11 under 35 U.S.C. § 102(b) over Nakamura (US 4,193,977). Additionally, Applicants thank the Examiner for suggesting alternative language for claim 1. It is kindly requested that the Examiner withdraw the remaining rejections in view of the amendments to the claims and the following comments.

As noted in the Discussion of the Amendments Section, the term "dry" was inadvertently omitted from the revised text of the Specification, as originally filed. Entry of the amendment now provides the basis for patentable distinction of the claimed invention, at least in part, by inclusion of this term. That is, the thermal treatment step is not a drying step, as the Office has previously maintained. Therefore, the claimed invention is not directed to an additional drying stage but to *a thermal treatment of dry material* that is directed to increasing the internal stability of sodium percarbonate. This aspect will be clarified as follows.

The data shown in Table 1 on page 12 of the Specification, reproduced here for convenience, shows that when dry sodium percarbonate is thermally treated there is no significant percentage weight loss of the product, as determined by an IR Balance.

No	T (°C)	Oa (%)	Weight Loss (%) (IR Balance)	TAM Value (μW/g)
Start		13.7	1.3	10.6
1	80	13.7	1.0	9.3
2	85	13.7	0.8	8.1
3	90	13.6	1.0	7.3
4	95	13.5	1.1	6.3
5	100	13.0	1.5	4.8

In fact, it can be seen that the moisture content of the material, as reflected in the average percent weight loss (for No's 1-5) is $1.1 \pm 0.3\%$, which is statistically indistinguishable from

the moisture content of the starting material. Accordingly, no substantial drying occurs during the thermal treatment step. Why? Because the sodium percarbonate is already dry.

Given the propensity of sodium percarbonate to undergo a loss of active oxygen content when heated at elevated temperatures (see Nakamura), it should be apparent that the claimed invention is distinguishable from at least one of the cited references.

Moreover, it should be clear that the claimed invention is not a manifestation of a skilled artisan seeking to obtain dry sodium percarbonate by optimizing time and temperature. Rather, it is reflection of the observation that the internal stability of sodium percarbonate may be improved, as evidenced by the observed Oa and TAM values (see Table and Figure), by thermally treating dry sodium percarbonate for at least 2 minutes at a temperature from 80 to 95°C.

Furthermore, the thermally treating does not include a coating step. One of ordinary skill knows the conventional steps required for preparing sodium percarbonate. But the claimed invention provides a process that "takes place where the conventional processes and/or coating processes end" (p. 9, *ll.* 1-2). Specifically, one aspect of the claimed invention involves a process, comprising a thermal treatment of *dry* sodium percarbonate *consisting essentially of coated or uncoated sodium percarbonate* wherein the thermal treatment is performed for a time of at least 2 minutes at a temperature from 80 to 95°C, while maintaining the active oxygen content virtually constant, and ambient air surrounding the sodium percarbonate is continuously replaced. That is, the thermal treatment step does not require additional added material agents other than dry sodium percarbonate, which either may be coated or uncoated (see certified English translation of DE 10065953.5; p. 1, *ll.* 5-10).

Accordingly, it is believed that amended claim 1 is now distinguishable from the cited references, as there is **no** suggestion or motivation from any or all of the cited references to thermally treat dry sodium percarbonate in the absence of added materials.

Therefore, the rejection of claims 1-2 and 4-19 under 35 U.S.C. § 103(a) over James (US 5,556,834), Klasen (US 5,632,965), and Britchard (US 4,421,669), either taken alone or in combination, is obviated by amendment.

All three references, either alone or in combination, do not describe thermally treating dried sodium percarbonate. Rather, any heating performed on the sodium percarbonate is done in order either to dry the material or both dry and coat the material. Additionally, there is no suggestion or motivation to thermally treat dry sodium percarbonate, as the ordinarily skilled artisan would have reasoned that additional heating would have resulted in further loss of active oxygen content. It will become apparent that the claimed invention is not obvious, in view of the cited references, as it is somewhat contrary to the principle dogma of the field. A further appreciation of why the claimed invention is unobvious in view of the cited references can be gleaned by analyzing the disclosures of the cited references.

For example, James describes an improvement in the coating material composition, which results in products with less heat generation in bulk storage than materials having alternative coatings. Although the coating process disclosed in James includes drying the product, there is no indication that drying conditions can have any influence on the amount of heat generation in the dried product. The only product property that is considered relevant for selecting the duration of the drying stage is the amount of residual moisture to be tolerated (col. 6, *ll.* 25-36). All other parameters are related to the equipment used, and therefore, would not consider thermally treating dry sodium percarbonate.

Additionally, James also indicates that although drying in the fluidized bed can be carried out at temperatures of 50 to 90°C, a low temperature of from 60 to 70°C is preferred

(col. 5, *ll.* 56-59). Therefore, James provides neither a suggestion nor a motivation that thermally treating dry sodium percarbonate in the absence of added materials may serve to improve the internal stability of the sodium percarbonate product.

Since thermally treating sodium percarbonate past the point where the product has been dried to the desired moisture content has no benefit for the purpose of drying, and one would expect it to be detrimental to the product property of high active oxygen content, one would have no reason to select such a variation of the process based on the teaching of James.

Accordingly, it is requested that the Examiner withdraw the rejection of the claims in view of James.

The same reasoning must also apply with respect to the disclosure of Klasen. Again, Klasen's thermal treatment is related only to obtaining dry product, and Klasen provides no reason to believe that extending the thermal treatment past the point of drying would be beneficial. For the reasons pointed out above, a one would not be tempted to thermally treat dry sodium percarbonate, nor would one desire to heat it beyond a point where the material is deemed to dry, because one would consider such a variation to be detrimental to the active oxygen content of the product based on his general knowledge on the properties of sodium percarbonate.

Accordingly, it is requested that the Examiner withdraw the rejection of the claims in view of Klasen.

Brichard discloses a process for the stabilization of particles containing peroxygen compounds by coating using coating agents that are insoluble in water and melt at low temperatures, such as waxes and bleaching compositions containing particles stabilized according to this process (col. 1, *ll.* 9-14). Accordingly, Brichard does not render the claimed invention obvious.

It is kindly requested that the Examiner acknowledge the same and withdraw this rejection.

The rejection of claim 1-2 and 4-19 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement, is obviated by amendment.

The phrase "without adding a coating agent" will be deleted upon entry of the amendment. Applicants amended claim 1, as suggested by the Examiner. It is believed that amended claim 1 is in compliance with 35 U.S.C. § 112, first paragraph. Accordingly, it is requested that the Examiner withdraw this rejection.

In closing, it is believed that the claims are in a condition for allowance, and it is kindly requested that the Examiner consider the same. Should the Examiner deem that a personal or telephonic interview would be helpful in advancing this application toward allowance, he or she is encouraged to contact Applicant's undersigned representative at the below-listed telephone number.

Respectfully submitted,

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A handwritten signature in black ink, reading "Daniel R. Evans". The signature is written in a cursive, flowing style. Below the signature is a horizontal line.

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